

ABSTRACT

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A composite oxide suitable for an active material of a positive electrode for a lithium secondary cell which can be used in a wide range of voltage, has a large electric capacity and excellent low temperature performance and is excellent in the durability for charge-discharge cycles and highly safe, a process for its production, and a positive electrode and a cell employing it; wherein the composite oxide is a lithium-cobalt composite oxide which is represented by the formula $\text{LiCo}_{1-x}\text{M}_x\text{O}_2$, (wherein $0 \leq x \leq 0.02$ and M is at least one member selected from the group consisting of Ta, Ti, Nb, Zr and Hf), and which has a half-width of the diffraction peak for (110) face at $2\theta = 66.5 \pm 1^\circ$, of from 0.070 to 0.180° , as measured by the X-ray diffraction using CuK_α as a ray source.